

IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his)
capacity as ATTORNEY GENERAL)
OF THE STATE OF OKLAHOMA and)
OKLAHOMA SECRETARY OF THE)
ENVIRONMENT C. MILES TOLBERT,)
in his capacity as the)
TRUSTEE FOR NATURAL RESOURCES)
FOR THE STATE OF OKLAHOMA,)

Plaintiff,)

vs.) 4:05-CV-00329-TCK-SAJ

TYSON FOODS, INC., et al,)

Defendants.)

VOLUME I OF THE VIDEOTAPED
DEPOSITION OF INDRAJEET CHAUBEY, PhD, produced
as a witness on behalf of the Plaintiff in the above
styled and numbered cause, taken on the 27th day of
January, 2009, in the City of Tulsa, County of
Tulsa, State of Oklahoma, before me, Lisa A.
Steinmeyer, a Certified Shorthand Reporter, duly
certified under and by virtue of the laws of the
State of Oklahoma.

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918-587-2878

EXHIBIT

tabbles

5

1 wait for you to finish your answer before asking
2 another one so that the court reporter can get that
3 down. With others being on the phone today and
4 making objections, it will be a little more
5 distracting I think so if they do make an objection, 08:54AM
6 wait until it's completed and then we'll go forward
7 with your responses. All right?

8 A Okay.

9 Q We will take periodic breaks. At any time you
10 feel like you want to take a break and we haven't 08:54AM
11 taken one, let me know and we'll do that. All
12 right?

13 A Okay.

14 Q Tell the court where you reside.

15 A I live in West Lafayette, Indiana. 08:55AM

16 Q And you're employed there; correct?

17 A I am employed at Purdue University.

18 Q Since you agreed to appear and testify, have
19 you been contacted by any of the poultry integrator
20 defendant lawyers in this case? 08:55AM

21 A Yes. I got subpoena and a phone call from
22 Robert George and Michael --

23 Q Bond?

24 A Bond, yes.

25 Q All right. When did that call occur; do you 08:55AM

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1 remember?

2 A It occurred last week.

3 Q All right, and they called you?

4 A Yes.

5 Q And what did they say when they called you? 08:55AM

6 A I guess the conversation was they wanted to
7 know if I was a paid expert on this case and if I
8 was going to take any side and wanted to know what
9 it was going to be about.

10 Q And did you respond to their question whether 08:55AM
11 you were a paid expert?

12 A Yes, I did respond to that question.

13 Q What was your response?

14 A I am not a paid expert.

15 Q All right. Did they ask you any other 08:56AM
16 questions or make any other statements to you in
17 that conversation?

18 A I recall I think one of the questions was if I
19 understood some of the comments I make could
20 potentially determine the liability in this case. 08:56AM

21 Q Did those statements to you make you feel
22 uncomfortable in any way?

23 A No, it did not.

24 Q Okay. Now, you and I have spoken before
25 today; is that correct? 08:56AM

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| | | |
|---|----------|------|
| 1 | A | Yes. |
|---|----------|------|

1 **A** No. This is the first time I heard some of
2 those names.

3 **Q** Do you know a gentleman by the name of Bernard
4 Engel?

5 **A** I know him. 08:57AM

6 **Q** How long have you known him?

7 **A** We have worked together for a little over two
8 years now, and I've known him for more than seven or
9 eight years.

10 **Q** All right, and where did you first meet him; 08:57AM
11 do you recall?

12 **A** We first met in a conference, our professional
13 American Society of Agricultural and Biological
14 Engineering Conference.

15 **Q** All right. Have you looked at or read Dr. 08:58AM
16 Engel's expert report that he prepared for this
17 case?

18 **A** I have not.

19 **Q** Have you looked at any parts of it?

20 **A** No. 08:58AM

21 **Q** Have you discussed with Dr. Engel the nature
22 and scope of his opinions contained in that report
23 that he has prepared for this case?

24 **A** No, I have not.

25 **Q** Have you seen or read any of the expert 08:58AM

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1 reports submitted by the defendants in this case?

2 A No.

3 Q Have you looked at any or read any reports
4 submitted by other experts submitted by the State of
5 Oklahoma in this case?

08:58AM

6 A No.

7 Q Do you know the names of the experts used by
8 the State of Oklahoma in this case?

9 A I do not.

10 Q Do you know the names of the experts used by
11 the defendants in this case?

08:58AM

12 A I do not.

13 Q Have you been asked at any time to perform
14 work for any expert who's identified himself to be
15 an expert in this case?

08:59AM

16 A Can you ask that question again?

17 Q Have you been requested by any person
18 identifying themselves to be an expert in this case to
19 do work for them?

20 A No.

08:59AM

21 Q Have you looked at or read any transcripts of
22 either Dr. Engel or others in this case?

23 A No.

24 Q Have you been provided any data that was
25 gathered by the State or people working on behalf of

08:59AM

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1 the State of Oklahoma in this case?

2 A No.

3 Q Have you been provided any data provided
4 through the defendants in this case?

5 A No. 08:59AM

6 Q What, if any, encouragement or discouragement
7 has Dr. Engel provided to you for your testimony
8 today, if any?

9 A None.

10 Q Has Dr. Engel put any pressure on you to 08:59AM
11 testify?

12 A No, he has not. I don't see how he can put
13 pressure. I'm a tenured professor at Purdue. So no
14 one can.

15 Q Have you been promised anything for your 09:00AM
16 testimony in this case?

17 A No.

18 Q Have your expenses been paid to come to Tulsa?

19 A Yes.

20 Q And what expenses were those? 09:00AM

21 A Airfare and hotel.

22 Q All right. Have you, sir, in your
23 professional career at any time been requested
24 directly by any of the defendants in this case to
25 perform consulting work on their behalf? 09:00AM

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1 A No.

2 Q Have you performed any consulting work for the
3 State of Oklahoma in the past?

4 A No.

5 Q Have you been retained to provide an opinion 09:00AM
6 about the State of Oklahoma experts' opinions?

7 A No.

8 Q Have you been retained to consult with any of
9 the State's experts on any issue in this case?

10 A No. 09:01AM

11 Q Have you been retained by anyone to provide
12 opinions as to the defendants' experts' opinions?

13 A No.

14 Q Other than coming to testify today in Tulsa,
15 have you been asked by me or others for the State of 09:01AM
16 Oklahoma to do any work on this case?

17 A No.

18 Q Other than your coming today to testify, have
19 you been asked by me or others for the State of
20 Oklahoma to form any opinions specifically in 09:01AM
21 connection with this case?

22 A No.

23 Q Let's talk a little bit about you, Dr.
24 Chaubey. I'm going to hand you what is Exhibit No.
25 1. I'll represent to you that this is a document 09:02AM

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1 | **A** It was from University of Allahabad in India.

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1 **A** Biosystems engineering.

2 **Q** And what year was that degree obtained?

3 **A** 1997.

4 **Q** Did you have a thesis captain or director in
5 your work there?

09:04AM

6 **A** Yes.

7 **Q** Who was that?

8 **A** It was Dr. C. T. Hahn.

9 **Q** What was the general subject of the thesis
10 that you prepared for your doctorate?

09:05AM

11 **A** It was in the area of hydrology and watershed
12 modeling. I investigated how different
13 uncertainties relate to model inputs and parameters.

14 **Q** Okay. Let's talk a little bit about the
15 awards and honors you have listed here. There are
16 several, but are these all of the ones that you have
17 obtained?

09:05AM

18 **A** No. Actually, what I consider the most
19 significant is not listed here.

20 **Q** What is the award or honor that is significant
21 to you that's not listed?

09:05AM

22 **A** It is New Holland Young Researcher Award. It
23 is given by American Society of Agricultural and
24 Biological Engineering to one researcher every year
25 younger than 40 years old.

09:05AM

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1 Q All right. So the subwatershed, does it have
2 a name?

3 A Moores Creek watershed. It is also at times
4 referred as Lincoln Lake watershed.

5 Q All right. Has it ever been referred to as 09:11AM
6 Muddy Fork; do you know?

7 A It is part of the Muddy Fork watershed, yes.

8 Q Okay. Let's talk a little bit about your
9 employment history, if we can, sir. Starting with
10 when you were still studying -- or tell me when was 09:11AM
11 the first time that you took a paid position in or
12 around your bachelors degree or after it, sometime
13 in that starting time frame.

14 A So in 1992 in January I started my masters
15 degree at the University of Arkansas, and I was a 09:12AM
16 half-time research assistant, working 20 hours a
17 week on a research project.

18 Q What was the nature of the project that you
19 were working on there?

20 A I was involved in looking at land application 09:12AM
21 of poultry litter and swine manure and how that
22 results in water quality, constituent transport in
23 small controlled plots, and what different best
24 management practices could be considered to minimize
25 that impact. 09:12AM

1 Q With regard to that work, did it include
2 bacteria transport as part of those constituents?

3 A Yes, it did.

4 Q All right, and that period of time was from --
5 what were the dates of that work?

09:13AM

6 A So it went from January 1992 to July 1994.

7 Q Okay. Did you then obtain employment after
8 that work in July of '94?

9 A I started my PhD in August of 1994 at Oklahoma
10 State University, and I was a half-time research
11 assistant there, working 20 hours a week.

09:13AM

12 Q What kind of work were you performing as a
13 half-time research assistant?

14 A I was involved in looking at hydrologic and
15 water quality models, how do they work in different
16 watersheds, how we can improve them, how we can
17 reduce their uncertainty.

09:13AM

18 Q Did you meet a gentleman by the name of Dr.
19 Storm while at OSU?

20 A Dr. Daniel Storm, yes.

09:13AM

21 Q And did he participate in your PhD studies in
22 any way?

23 A He was a member of my PhD committee.

24 Q After October '97, did you have additional
25 employment?

09:14AM

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1 A Yes.

2 Q Tell us what that was.

3 A I was assistant research scientist at
4 University of Alabama from October 1997 until April
5 2000. 09:14AM

6 Q And what kind of work did you do as an
7 assistant research scientist there?

8 A I worked as a hydrologist and water quality
9 modeler, again, in general, looking at water
10 response to runoff, sediment, nutrients. 09:14AM

11 Q Was that a full-time employment?

12 A That was a full-time employment.

13 Q After April 2000, did you secure employment
14 elsewhere?

15 A I became assistant professor at University of
16 Arkansas. 09:15AM

17 Q And what was the time frame that you were at
18 University of Arkansas?

19 A So from May 2000 until December 2006 I was
20 there. 09:15AM

21 Q All right, and did your position as an
22 assistant professor change at any time during that
23 period?

24 A In 2005 I became -- I got tenured and I was
25 promoted to associate professor. 09:15AM

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1 Q All right. Where did you go after leaving
2 University of Arkansas in December of '06?

3 A So in January of 2007 I became associate
4 professor at Purdue University.

5 Q And were you hired there as a tenured 09:15AM
6 professor?

7 A No, I was not hired there as a tenured
8 professor. I got tenure last year.

9 Q You mentioned that you had done some work in
10 the watershed of Indiana and then you've talked 09:16AM
11 about the Illinois River watershed. Are there any
12 other watersheds that you've had experience with
13 besides those two? I say two. Let me back up. How
14 many Indiana watersheds have you been involved with
15 in doing your work or study? 09:16AM

16 A At least half a dozen of Indiana watersheds
17 I'm working on right now.

18 Q Other than the Illinois River watershed, are
19 there others in Arkansas that you've done work in?

20 A I've worked in Beaver Lake watershed. I was 09:16AM
21 involved in Eucha-Spavinaw watershed and a number of
22 what I call priority watersheds in Arkansas.

23 Q What kind of watersheds?

24 A Priority watersheds.

25 Q Priority watersheds, okay. Just briefly tell 09:17AM

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1 the court, if you would, what kind of areas of study
2 or investigation you were conducting in these
3 various watersheds; are they consistent with what
4 you've done in your degrees?

5 A Yes. They are all related to agricultural 09:17AM
6 watersheds and looking at different processes
7 related to hydrology and water quality, how do these
8 processes affect what gets transported from these
9 watersheds, how we can mathematically model them and
10 what kind of different management practices we can 09:17AM
11 evaluate to see what happens.

12 Q All right. How long now have you then -- I
13 want to speak now basically about the Illinois River
14 watershed or its subbasins. How long have you been
15 directly involved in studying or investigating that 09:18AM
16 watershed or its subbasins?

17 A My masters thesis was based on work in the
18 Illinois River watershed, and then when I came back
19 as a faculty in 2000, since then I have been
20 involved in a number of projects in the watershed. 09:18AM

21 Q All right. So some of that work was in the
22 early '90's and then again starting in around 2000?

23 A Yes.

24 Q All right. Did your work in the watershed
25 include what I called field work study? 09:18AM

1 MS. LONGWELL: Object, form.

2 A Yes.

3 Q Tell the court what field work study would be.

4 A Field work study would involve instrumenting,

5 collecting data at the field scale and our 09:18AM

6 developing mathematical models to investigate what

7 happens in terms of hydrology and water quality at a

8 scale typical of a field.

9 Q Do you have experience in actually taking

10 samples then while in the field? 09:19AM

11 A I have done a lot of field experimentation and

12 have been involved directly in collecting field

13 data.

14 Q Has your experience involved setting up

15 instrumentation which would remotely or 09:19AM

16 automatically collect data also?

17 A Yes.

18 Q In your work in the Illinois River watershed,

19 have you relied solely on just the data that you've

20 collected or others under your supervision? 09:20AM

21 A Ask that question again.

22 Q In your work in the Illinois River watershed,

23 is that work, and certainly the papers you've

24 written, relying solely on the data that you collect

25 or would it include data from others? 09:20AM

1 **A** No. It does involve data and publications
2 from others who have worked in the watershed.

3 Q So you have read published literature that
4 would have some impact on your study or
5 investigation; is that correct?

| | | |
|---|----------|------|
| 6 | A | Yes. |
|---|----------|------|

7 Q Based on your experience, how would you
8 characterize the volume of published literature and
9 data that involves the Illinois River watershed?

10 **A** It is, in my opinion, a very well studied
11 watershed. Compared to lots of other watersheds
12 that I have experienced or seen, it is a data-rich
13 watershed.

14 Q Do you know whether or not research and study
15 is still ongoing with regard to the Illinois River
16 watershed? By others first, let's ask that. Do you
17 know if others are still doing studies in the
18 Illinois River?

19 **A** I don't know for sure. There was some studies
20 going on when I left and was different assignment to
21 Purdue, so I assume they are still continuing.

22 Q Are you continuing to do any work in the
23 Illinois River watershed?

| | | |
|----|----------|------|
| 24 | A | Yes. |
|----|----------|------|

25 | Q And that area of work involves what?

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1 **A** I am funded by USDA to study in Lincoln Lake
2 watershed different best management practices, how
3 do they work, and some of the socio-economic factors
4 associated with BMP adoption, implementation and
5 maintenance.

09:22AM

6 **Q** Do you have any estimate of how long that work
7 is going to continue?

8 **A** We are in fourth year of that project, so that
9 will end in September of '09.

10 **Q** All right. Tell me, what are some of the
11 sources of data that you have reviewed either
12 through literature or downloaded that became part of
13 your study or your work or your experience?

09:22AM

14 MS. LONGWELL: Object to form.

15 **A** Besides my own data, I have worked with the
16 data that have been collected by Arkansas Water
17 Resources Center, Arkansas Natural Resources
18 Commission and Arkansas Department of Environmental
19 Quality. I have worked with some GIS data that have
20 been compiled and are housed by Center For Advanced
21 and Special Technology, which is part of University
22 of Arkansas. So they come from a variety of
23 sources.

09:22AM

09:23AM

24 **Q** Is USGS also a source?

25 **A** Yes, of course, USGS is also a source of that

09:23AM

INDRAJEET CHAUBEY, PhD, Volume II, 3-2-09

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2 NORTHERN DISTRICT OF OKLAHOMA
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INDRAJEET CHAUBEY, PhD, Volume II, 3-2-09**137**

1 Q Okay. On Page 2 of your report at the top
2 right-hand column it says, land use within the
3 Illinois River watershed is approximately 58 percent
4 pasture, 36 percent forest and 6 percent urban, and
5 it cites Dr. Soerens in 2003. You've indicated 08:44AM
6 earlier in your testimony that you know Dr. Soerens;
7 correct?

8 A I know him.

9 Q And did you read this study and do you agree
10 with its conclusion? 08:44AM

11 A Yes.

12 Q All right. Looking at Page 4, the lower
13 right-hand corner, I want to talk a little bit about
14 the runoff mechanisms that you actually dealt with.
15 It says under that heading, runoff mechanisms on the 08:44AM
16 plots, each runoff event was analyzed to quantify
17 the occurrence of saturation excess versus
18 infiltration excess runoff on each plot. So you
19 were measuring two different processes; is that what
20 I understand? 08:44AM

21 MR. BOND: Object to the form.

22 A We were measuring two different processes that
23 result in runoff generation, and those two processes
24 are described here.

25 Q And I know they're detailedly (sic) described 08:45AM

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INDRAJEET CHAUBEY, PhD, Volume II, 3-2-09**138**

1 in your report, but tell the court generally what
2 are those two processes that you identified and
3 studied?

4 **A** So the two processes that result in runoff
5 generation, number one is infiltration excess 08:45AM
6 process, and number two is saturation excess
7 process. You want me to talk about those two
8 processes?

9 **Q** Yes, sir, I do. Just briefly tell us what
10 they are in the concept of what you were studying in 08:45AM
11 this study.

12 **A** So in order for runoff to be generated when
13 there is a rainfall happening, one of the two
14 conditions have to be met. Number one, the rate at
15 which rainfall is hitting the ground, there is 08:45AM
16 infiltration taking place, which takes some of that
17 rainwater inside the soil profile, and so if you
18 look at the infiltration rate, the rate at which
19 water is infiltrating, and then look at the rainfall
20 rate, when rainfall rate is greater than 08:46AM

21 infiltration rate, then runoff will occur on the
22 surface, and that process is called infiltration
23 excess runoff. It's not always needed for runoff to
24 take place. The other possibility could be that if
25 the water table beneath the soil surface is close to 08:46AM

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INDRAJEET CHAUBEY, PhD, Volume II, 3-2-09

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1 Q Okay, and there were others; correct?

2 A There are others, yes.

3 Q If we look at Page 14 at the summary and
4 conclusions of this paper, after it describes your
5 methodology, the second sentence of that from under 08:50AM
6 that heading it says, results from this study showed
7 that both infiltration excess and saturation excess
8 runoff processes occur on this hillslope. Based
9 upon the way you set this study up, would the
10 processes that you identified and quantified in this 08:50AM
11 study be found throughout the Illinois River
12 watershed in similar circumstances?

13 MR. BOND: Object to the form.

14 MR. FREEMAN: Object to form.

15 MS. HILL: Object to form. 08:50AM

16 MS. LONGWELL: Form.

17 A Yes, because we wanted it to be a
18 representative hillslope. So I think that this
19 conclusion will be applicable to the watershed.

20 Q Okay. Have you seen any other studies as 08:51AM
21 detailed with regard to the sensors used by you in
22 this study to measure runoff processes?

23 A There have been a number of studies to measure
24 runoff processes, not very many. There is actually
25 only one other group in the U. S. that has done 08:51AM

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